

YOR9-2001-0335  
Amendment dated 11/27/2007

09/917,818

00280706aa  
Reply to office action mailed 08/27/2007

16 14  
Please replace the paragraph beginning at page 17, line 12, with the following  
rewritten paragraph:

HD  
12/28/29

Feasibility. In a multi-round auction mechanism, there may not be enough bids placed in earlier rounds in the auction to satisfy the total demand requested by the procurer. In such cases, the formulations presented earlier for the volume-discount and combinatorial auction winner determination problem (formulation (1)) will be infeasible. In practice, it has been determined that the procurer preferred to receive a partial allocation if the entire demand could not be met. (Here, the customer specified that the side constraints be satisfied at all times, and only the demand constraints could be ~~relaxed~~ relaxed.) This requirement may be modeled using the existing formulations by adding dummy bids to the formulation as described earlier.

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**Amendments to the Specification:**

HD  
12/28/09  
Please replace the paragraph beginning at page 8, line <sup>21</sup>19, with the following rewritten paragraph:

Auctions that are ~~parametrized~~ parameterized as a single-round, sealed-bid auction only require feedback about which of the bids are winners. In multiple-round auctions, after each round the provisional winning bids and a market clearing price for each bundle (or item) is provided. If there is feedback on the winning bids, this information is fed back to block 203, where each bidder uses the information to re-formulate new bids so as to maximize their expected return for the next round of bidding. (Step 206). Typically, there is always feedback about the winning bids. In a single-round auction, the bidders do not respond with new bids but only the winning bidders will transact based on their winning bid.

HD  
12/28/09  
Please replace the paragraph beginning at page 9, line <sup>6</sup>3, with the following rewritten paragraph:

Figure 3 provides a system level information flow for bid evaluations. For a current auction, bids are read from a database table 300 and are used to create a set covering formulation 301 with ~~a~~ an objective function and demand constraints. Subsequently, business rules are added to the formulation as side constraints 302. Based on this formulation, a computer-implemented representation using arrays is generated 303 in the manner explained below. This representation is then used with any commercial LP/IP solver 304 to find the cost-minimizing bid set. (Here, "LP" means linear programming and "IP" means integer programming.) Some examples of commercial LP/IP solvers are Optimization Subroutine Library (OSL from IBM), CPLEX (from ILOG, Inc.), XPRESS-MP (from Dash Associates).